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ABSTRACT

The relationship of policy and decision making to statistical data and analyses is discussed. The optimal relationship, in which statistics play a key role in funding allocation and other policy decisions, rarely holds. Most surveys by statistical agencies are on a large scale, with a broad focus, resulting in databases which are difficult to maintain and modernize. Because of this, policy-makers have not been able to rely on statistical agencies for relevant statistical data and have had to collect their own data and do their own statistical analyses. The increased statistical sophistication of policy-makers has been reinforced by the opening of the data-gathering process by statistical agencies, the computer revolution, and the devaluation of the "monopoly of expertise" of government statisticians. Current uses of statistics include funding allocation, economic monitoring, program-specific monitoring, and public policy formation. The responses of the Bureau of Labor Statistics to national employment dislocations in the 1980-82 period, to the increasing numbers of women in the workforce, and to drug use in the workforce are used to illustrate the relationship of statistics to policy formation. (TJH)

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POINTING THE WAY: DATA, ANALYSIS, AND DECISIONMAKING

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POINTING THE WAY: DATA, ANALYSIS, AND DECISIONMAKING

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The worlds of statistics and policy are aligned at strategic points. For example, statistics play a central role in allocation of Federal funding for transfer payments to other units of government, and in escalation of tax rates and payments to individuals (Norwood, 1989). It is common knowledge that decennial Census numbers determine the distribution of seats in the House of Representatives. But these well-publicized uses of data in allocations, escalations and apportionment are the exceptions, not the rules.

The relationship between data and decisions is not very often that clear. The decisionmaking process at times seems independent of the statistical base that has been established to support it. Although Federal statisticians try to be responsive to the needs of decisionmakers in Congress and the Administration and while decision-makers do make use of data, there is little that can be said with certainty, in tracing most political decisions, about a cause-and-effect relationship between data and policy.

Decisions and Data

The interlocking of statistics and policy is an issue of critical importance to our system of government and to the statistical agencies that want to support the decisionmaking process. From a statistician's viewpoint, the relationship between data and decisions ought to be straight-forward--good decisions need good data, and good data, which are increasingly expensive to collect and maintain, need the support of those who use the statistics and allocate public resources. The kind, frequency and quality of data produced ought to be determined by the needs of the users. Statistical agencies ought to determine their statistical portfolios based on those user requirements. In a word, users point the way; statisticians illuminate the path.

The interests of policymaker and statistician have unfortunately, not fully converged in practice. This is not a new problem. Nearly a decade ago, the President's Reorganization Project for the Federal Statistical System report saw a tension between the statistical system and policymakers that was "inevitable." Policymakers, the report found, "must deal with values and, therefore, with judgements and subjectivity. Statistical agencies strive for quality, reliability, integrity and objectivity." (Bonnen et al., 1981) It is no wonder that the Departments, the White House, and the Congress at times may consider the statistical agencies to be unresponsive.

The report went on to identify another source of potential difficulty. Statistical agencies focus on "systematic measurement of broad facets of a society's dimensions and behavior" (Bonnen et al., 1981) thus having portfolios of grand, large-scale, general-purpose surveys for which it is increasingly troublesome to obtain resources for maintenance and modernization. In fact, agencies have faced a real reduction in resources to provide their services over the past decade (Wallman, 1988). This suggests that agency portfolios, which have taken so long to build and which are the envy of statistical agencies throughout the world, may not be marketable in the important policy arena which they were once designed to serve. It further suggests that the assumed *quid pro quo* relationship between users and statistical agencies may not be the operational model.

The Drift of Policy and Statistics

How did the worlds of policymaker and statistician drift apart? It is important to examine this question as prelude to considering how the operational environment might be changed. Later in this paper, we do that by looking at examples of successful policy applications of information that illuminates the way in the field of labor market information, and lessons that might be learned by those experiences.

One can postulate any number of reasons for a drift. Up until quite recently, the agencies had been quite satisfied to place accurate data in the hands of users on the presumption that users would determine the ultimate use. For many years, the statistical agencies were responsible for the reliability and validity of the numbers, contributing little value added beyond descriptive analysis. Importantly, interpretation would be left to the users (decision-makers). Indeed, this approach was seen by the agencies to be necessary for survival of independence in a dangerous political environment. To insure that professional integrity, the "survival" strategy included presenting the descriptive analysis in rather arcane technical language, preferably in footnotes or appendices. Quantitative analysis--an essential synthesizing tool for bringing statistical evidence to bear on complex policy issues--was seen to be the responsibility of those who use data in policymaking. (Bonnen et al., 1981)

Partly in response to the considerable roadblocks that statistical agencies placed in their way, policymakers and

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policy advocates have indeed become more sophisticated. We see the evidence all around. For example, in recent assessments of the number of persons who lack health insurance, the official Federal Government estimate and an Urban Institute estimate differed by 2-1/2 million, despite using the same basic data source. On the Capitol hill, an aide to Senator Kennedy was quoted as saying, "Whether it is 31 million or 37 million or 25 million, Senator Kennedy believes that is too many..." (Washington Post, 1989).

The role the Urban Institute played in this little drama represents the fact that policy analysts--both in and out of government--are able to critique data in sharp, well-informed ways that get the attention of policymakers. Other recent examples from the worlds of economics and social science have to do with potential technical difficulties the measurement of product originating in U.S. manufacturing (Mischel, 1988) and with presentation of the amount of error in the seasonally adjusted unemployment rate (Summers, 1984).

Changing Environment

Increasing user sophistication creates an environment of considerable challenge for the statistical agencies. Several factors may have been responsible for opening doors to the innermost aspects of the data; doors that can never again be shut.

In recent years the statistical agencies themselves have opened the data gathering process to outside review as never before. They do this through advisory committees, testimony and consultation, and by conducting extensive campaigns of public education on the Federal statistical system. In effect, the agencies have had great success with these efforts, and are now faced with some of the consequences.

A second influence is the revolution in computing technology. No longer do policymakers have to wait for the statistical agencies to compile and, on their own schedules, hand down their data much the same way as Moses brought down the law from the mountain. Today, nearly anyone with access to a decent personal computer, a telephone, and a modem has available a level of computing power that not so long ago was the monopoly of the big government number-crunching agencies, if it was available at all. The same technical advances that have dramatically changed the way that the statistical agencies conduct their internal business have also allowed our policy-oriented users to do independent analysis. To the chagrin of the statistical agencies, some of the more sophisticated organizations--those that provide assistance in the Congressional decisionmaking process like the Congressional Budget Office, those that support the administration like the Center for Naval Analysis, and the private think-tanks like the Rand Corporation, Brookings, and the Urban Institute--have long exceeded the technical capacity of the statistical agencies to array and analyze data that they produce.

Third, there has been a devaluation of the so-called "monopoly of expertise" of the career civil service that includes, but extends beyond, the statistical agencies. We see this extension of expertise in many ways, one of which was described by Prof. Aaron Wildavsky, who wrote last summer in Public Administration Review:

> "... All around the country, in think-tanks, consulting firms, universities, state and local governments, congressional staffs, and elsewhere, there are rival teams of analysts who have recently been or expect soon to be in government. They know as much as those in the bureaucracy. ... Virtually everything that officials can say can be contradicted with conviction by these analysts in ... exile. Consequently, public officials can no longer say with confidence that their views should carry special weight because they know so much more than their critics." (Wildavsky, 1988)

The response of statistical agencies to these changes in their environments has been mixed. Most, however, have begun to see themselves as "more than 'figure factories'", as one of our Australian colleagues has most colorfully expressed it (Trewin, 1987). More and more the agencies are recognizing that policymakers are less and less inclined to accept from us the simple production of more, or better, data, but rather are looking to the agencies for value-added in analysis and interpretation. The old discussion of whether or not statistical agencies should analyze their own data (Norwood, 1975) has since been largely settled. We find today that statistical agencies are taking tentative steps into the era in which one distinguished observer predicted that "analytical studies, rather than mere presentations, will be expected of the statistical offices..." (Moser, 1977).

Intersection of Data and Decisions

Data produced by the Federal statistical agencies show up in many ways in the process of public decisionmaking; some quite obvious, others less evident. The most conventional are those that involve:

(1) Escalation and allocation of Federal funds.

(2) Monitoring the economy, the environment or other broad forces of interest.

(3) Monitoring of the performance of specific programs.

(4) Selection of public policy options.

These different uses of data place different require-ments on the statistical agencies and define different relationships between the agencies and the policy makers. As one moves down this list from allocation to selection of policy options, the need for analytical input on the part of the statistical agency generally increases.

The most obvious and direct uses are those in which government data trigger initiations, levels, adjustments, allocations and escalations in government programs:

-- A 1% change in the BLS Consumer Price Index, used to adjust Federal transfer payments and tax receipts, moves about $5 billion in Federal funds.

-- The BLS Producer Price Index and the Average Hourly Earnings series are used to escalate the materiel (30%) and labor (70%) components of long-term Federal contracts, providing the basis for automatic payouts on over $90 billion in outstanding contracts each year.

-- BLS wage surveys are used to set the minimum pay for contractors providing services to the Federal Government (about 10,000 determinations annually on contracts amounting to about $11 billion) and for setting Federal white-collar pay.

-- Local area unemployment rates figure in the allocation of Federal funds to local communities for programs as different as summer youth jobs, dislocated worker assistance, economic development and urban action grants, and emergency food and shelter programs.

With each session of Congress, the list of such uses gets longer, for Congress has for some time been in the process of essentially shifting the burden of detailed decisionmaking on an ongoing basis to the statistical series. In a way of speaking, "numbers rolling" has replaced "log rolling." In many cases, the data are woefully inadequate to the task, but still are called upon to bear the burden.

A more traditional use of the data is to serve as the "big picture" backdrop for decisionmaking. These uses are best exemplified, in the economics world, in the work of the Congressional Joint Economic Committee and by the monthly hearings this Committee holds on the employment and price situation. This long-term, unique relationship between the Bureau of Labor Statistics and a congressional fact-finding committee has provided a source of independent presentation and analysis of the data in an environment in which the agency carefully avoids drawing policy conclusions and the Congress provides a platform for that impartial discussion. A similar close relationship in the development and analysis of data exists between the Internal Revenue Service and the Joint Taxation Committee. Other issues are aired, using the major data series in the economic, social, environmental, health and justice fields by their respective committees in the Senate and the House, with an impressive level of sophistication in the process by the members and the staffs of the subject-matter committees.

Monitoring program performance is another use for the data. Though there are few examples of this use, which for the most part is Department-specific, statistics do play an evaluative role, both in terms of overall performance indicators and assessment of specific programs. Certainly one of the best of the current examples of the use of a comprehensive data collection for a monitoring overview purpose is the Census Bureau's Survey of Income and Program Participation, which was initiated to provide answers about the effectiveness of government transfer and other social programs.

Use of Data in Selecting Policy Options

Policymakers tend to ask at least three questions when they are faced with selecting from among policy options:

(a) What is the nature of the problem?

(b) What type or types of policies are most likely to help solve it?

(c) What happens when these new policies are put into effect? (Nathan, 1989)

For the most part, on-going government statistical series, in the raw, provide policymakers answers to questions about the nature of the problem. The use of government data in problem definition studies is widespread and varies in depth. In this task of "defining the problem," government statistics make their most important traditional contribution. The impact the statistics

have in illuminating policy depends on the relevance they have for that policy, and, in turn, on the quality of quantitative analysis that has been applied by the statistical agency. (Bonnen et al., 1981).

A few examples from the recent experience the Bureau of Labor Statistics in the field of employment and unemployment measurement may help illustrate the role that a data collection with a quantitative analytical function has on the development of public policy. Three examples are chosen, reflecting collections addressing public policy options for dislocated workers, day care, and illegal drug use testing and treatment in the workplace. Each of these topics continues to this day to constitute a major source of public policy interest and debate.

Reducing Many Estimates to One

As a result of the massive industrial dislocations that took place in the American economy during the 1980-82 recession, and which appeared to continue in the aftermath of that recession as U.S. employers sought to become more competitive in international markets, the problem of worker adjustment policy grew to some significance. In the early 1980s, it was feared that the employment cutbacks might be permanent, and that a large number of workers who had spent many years in relatively high-paying jobs would find themselves without work and with little hope of finding similar employment (Flaim and Sehgal, 1985). When this concern began to surface, there was no agreement on what to call them, how many there were, nor the consequences of the job loss. In fact, the numbers used in policy debates in the early 1980s ranged from about 100,000 (Bendick, 1983) to 31 million (Bluestone, 1983).

Because of these widely-different estimates, the Department of Labor's worker adjustment program managers in the Employment and Training Administration contracted with the Bureau of Labor Statistics to design a special survey to identify and count them. This is a fairly traditional response when a program agency has responsibility for a difficult problem. The Bureau's response was also traditional. BLS developed a survey, conducted as a supplement to the Current Population Survey in January 1984. Design of that survey required defining the group, then characterizing their situation. The sequence of questions was designed to provide flexibility in deciding the eventual number of workers who would be considered "displaced," i.e. the data would help define the condition and determine the count. Eventually, decisions were made by Bureau staff based on the data--with an eye on the general concensus as to who was and was not a displaced worker. The winnowing process led to the identification of 5.1 million displaced workers over the January 1979-January 1984 period, defined as those who had worked at least 3 years on jobs that were lost because of a plant closing or employment cutback. The survey has been repeated on biennial basis since 1984, using the same definitions.

Defining the problem was only one aspect of the Bureau's activities in this policy field. During 1986, Bureau staff were assigned to support the work of a Task Force on Economic Dislocation and Worker Adjustment which was assembled by Secretary William Brock to identify a policy response to the issue. In their roles as professional staff assistants to the Task Force, BLS personnel were asked to provide detailed, policy-oriented analyses to individual members, several subcommittees, and the full Task Force. These analyses, it is important to note, were in addition to, and extended well beyond, a data presentation that was provided to the Task Force members at the first meeting of the group. One of our staff was even conscripted into the drafting committee's proceedings as they compiled the final report and recommendations.

The report of the Secretary's Task Force was incorporated rather quickly and quite directly into legislation. The size of the program, originally slated to be $900 million per year, was based on the presumption that about one-half of the 1.5 million newly displaced workers would require assistance. The legislation that finally emerged--the Economic Dislocation and Worker Adjustment Assistance Act (EDWAAA) and the Worker Adjustment and Retraining Notification Act (WARN)--are both based directly upon the recommendations of the Task Force report. In this way, the document that served as the basis for the legislation reflects an unusual degree of analytical input from Bureau of Labor Statistics, insuring a very direct use of data in the policymaking process.

Finding a Needle in the Haystack

With the increased participation of women in the workforce over the past two decades, the issue of day care for children of working mothers has become a matter of major social concern. The issue is addressed as a matter of both tax and fiscal policy, with various tax credit, employer assistance and parent aid programs proposed over several

sessions of Congress. Toward the end of 1986, more than 100 bills in Congress, hundreds of newspaper, trade journal, and magazine articles, dozens of scholarly studies, and a variety of conferences and colloquia had clearly indicated a heightened interest. It was certainly clear that policymakers would be calling for data to help understand the options, and that the most critical gap in the database was information on employer-provided day-care benefits. A number of studies, conducted among limited populations of employers, had suggested that only a few large employers offered benefits or allowed work practices that assisted workers meet their child-care needs. (Friedman, 1985)

A further dimension of the issue was that the timing of legislative action demanded a quick turnaround on the information. In this case, as in many others, it was recognized that this was a time sensitive issue, with pressure for "instantaneous" response. As the report of the President's Reorganization Project for the Federal Statistical System recognized, "the pressure that policymakers feel for quicker response is passed on to the statistical system in the form of demands for quicker results." (Bonnen et al., 1981) Statistical agencies are hard pressed to respond, but they must, for when policymakers perceive that the statistical agencies cannot produce timely data, they will turn elsewhere for data and analysis. Continued, this will result in the statistical system becoming "increasingly isolated from policy and confined to producing data only for the general public." (Bonnen et al., 1981) The danger is that when this happens, policymaking will operate in a less open environment.

With this in mind, the Bureau initiated (on its own) and quickly designed a one-time survey of establishments undertaken in the summer of 1987 to collect information on the extent and type of employer-provided benefits and work policies that can aid workers with their child-care needs. The sample consisted of about 10,000 establishments with 10 or more employees, contacted by mail with computer-assisted telephone interviewing of a subsample. The weighted response rate of this quick-response survey was 86 percent, giving considerable confidence in the reliability of the results.

By January 1988, the survey had been completed and the results released. It found that roughly 11 percent of nonagricultural establishments with 10 or more employees provided direct child care help. The traditional debate in the policy community over whether this was a big or a small number followed, as expected. Nonetheless, after a period of close scrutiny, some criticism of the Bureau's analysis by those with subject-matter interest, considerable editorial comment and the publication of a clarification by the Bureau, it became generally acknowledged that the scope of employer provided services was as reported, and that knowledge then began to frame the debate. Thenceforth, the debate has been over the solution, not the definition of the problem. This is as it should be when statistical agencies and policymakers play their respective roles in a responsible manner.

Facing Controversy Head-on

We do learn from experience. The Bureau's next quick-response survey was on employer anti-drug programs. This project was, operationally, a great improvement over the child-care survey. From the time a contract was signed to the release of the data, the turnaround time was about a year, compared to about 18 months from the decision to go on the child-care survey. Perhaps the greatest strides were made in the area of data collection operations. The time spent on this phase of the survey was cut from 4 to 2-1/2 months--and the anti-drug program survey was a two-stage process.

It took less time to design an instrument, and less time to procure the needed hardware. The latter was not a little affected by the fact that a nucleus of a Computer Assisted Telephone Interview facility remained from the earlier work. Of course, there were certain procedures that could not or should not be shortened, such as clearance and analysis.

The clearance process is not one that can be influenced greatly. More importantly, even with the time available and the experience of the child-care survey to build on, the analytical end of the project could have been improved. For example, the report stressed counts of establishments with various anti-drug programs. The first result cited was that "...43 percent of the Nation's largest establishments--those with 1,000 employees or more--had drug testing programs, versus only about 2 percent of the smallest establishments--those with fewer than 50 workers." (U.S. Bureau of Labor Statistics, 1989)

Because small establishments make up the overwhelming share of the aggregate, only about 3 percent of all non-farm establishments were found to be conducting drug testing. About 7 percent

had some sort of employee assistance program in place, and about 1.4 percent were in the intersection of the two sets.

The survey also found that about 20 percent of the people employed in those establishments work at a shop with drug testing. Of this "population at risk," fewer than a million workers--perhaps one percent of the total--are actually tested. A much larger group of job applicants--4.9 million--is subjected to drug testing. Among those tested, 9 percent of employees and 12 percent of applicants tested positive.

Simply to arrive at the point where these relatively innocuous analytic statements were made was difficult, for the field is one of intense interest but with little documentation so that definitions had to be developed to be able to describe the phenomena measured even as the data were processed. Quality and accuracy, the two key goals of the statistical agency were important, but policy relevance was the litmus test of the usefulness of the results. This difficulty extended even to the issue of the order in which the results were presented, and, more significantly, to the way that order was determined. Essentially, the data are presented in descending order of their technical merit. Of secondary importance was the order of interest to decisionmakers. But in matter of fact, when the final report did find its way into the media--where most decisionmakers discover our work--the reported highlight was that only one in 100 workers were tested for drugs.

The Analytical Quandary

If, as we have suggested, it is important for the statistical agency to extend data with analysis in order for the information to have policymaking utility, the challenges to the agency are formidable. The balance must be between the first priority--to maintain objectivity--while allowing for accurate interpretations and sound analyses. The line is exceedingly fine, easy to cross over if the pressure to produce becomes too great. Thus, the tradition of the agency must support the atmosphere in which balance is rewarded.

Back from the Precipice

These lessons suggest that there is a great deal that statistical agencies can do to achieve and maintain this balance. In planning the survey, the analytical product and its tie to the policy question being asked must be the starting point. When the design process focuses primarily on mechanics and technique, there is a tendency to relegate "Analysis and Reporting" to a mysterious black box at the tail end.

Involving users in an assessment of what questions are important from the users point of view is also critical. Without that input, the questions that are answered are the questions that are important from a technical or statistical point of view. The questions that help illuminate the policy path are usually much more difficult to pose, and infinitely more difficult to answer.

Above all, agencies must take care to insure that statistical procedures remain open to inspection, review, and comment. The increasing sophistication of users requires, more than ever, that all aspects of the survey operation be conducted in a sunshine environment. There is an increasing probability that aspects of survey operations that once were likely to be accepted on faith will be the subject of scrutiny by policy analysts, and if problems are discovered by outsiders, it may be interpeted to reflect bad faith on the part of the agency.

At the bottom line, policy relevance in statistical operations requires an aggressive quantitative analytical approach on the part of the agencies. In this regard, another quote from Wildavsky may be appropriate:

> "Bureaucracy used to be for the timid, now it is only for the brave. Bureaucracy used to mean security, now it means exposure. ... Each generation calls for sacrifice from a different class: now it is our turn." (Wildavsky, 1988)

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